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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			DOTE, JANIS L	
			ART UNIT	PAPER NUMBER
			1756	
DATE MAILED: 05/05/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/092,920	Applicant(s) YAMASHITA ET AL.	
	Examiner Janis L. Dote	Art Unit 1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 12-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/8/02, 10/15/02, 11/20/02, 12/10/02, 1/16/03,</u> | 6) <input type="checkbox"/> Other: _____  |

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1. Applicants' election with traverse of the invention in Group I, claims 1-11, in their response filed on Jan. 9, 2004 (Elect010904), is acknowledged. The traversal is on the ground(s) that there is no supporting evidence on the present record suggesting that the claimed product can be made by the process alleged by the Office. Applicants' arguments are not found persuasive because it is well-known in the art to make spherical toner particles by the aggregation method described in the restriction requirement mailed on Dec. 19, 2003. See US 5,501,935, example 1 at cols. 17 and 18. It is also well-known in the art that a charge control agent can be applied to the surface of toner particles by a spray coating method. See US 6,544,705 B2, col. 10, line 61, to col. 11, line 4. It is further well-known that mechanically impacting toner particles coated with additives, such as charge control agents, fixes said additives to the surface of the toner particles. See US 6,140,000, col. 19, lines 8-12. Applicants have not come forward with any evidence to suggest that the toner recited in the instant claims cannot be made by the alternative process set forth in the restriction requirement.

The requirement is still deemed proper and is therefore made FINAL.

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2. The US patents listed on the "List of related cases" in the Information Disclosure Statements (IDS) filed on Mar. 8, 2002, (IDS030802), Oct. 15, 2002 (IDS101502), Nov. 20, 2002 (IDS112002), Dec. 10, 2002 (IDS121002), and Jan. 16, 2003 (IDS011603), have been crossed out by the examiner because the references are already listed on the forms PTO-1449 filed in IDS030802, IDS101502, IDS112002, IDS121002, and IDS011603.

The US applications 09/986,023, 09/843,357, 09/643,910, 09/712,927, 09/661,444, and 09/891,652, listed the "List of related cases" in IDS112002 have been crossed out the by examiner because they are already listed on the "List of related cases" in IDS030802 and IDS101502.

The examiner has considered only the material submitted by applicants, i.e., copies of the originally filed claims, abstract, and figures of the US applications listed in IDS030802, IDS101502, IDS112002, IDS121002, and IDS011603, and in the IDS's filed on Sep. 29, 2003, Oct. 29, 2003, Feb. 10, 2004, Mar. 3, 2004, and Mar. 11, 2004.

The examiner notes that 10 Information Disclosure Statements had been filed that include over 99 separate cited portions of applications and patents listed in the IDS's. The examiner notes that only a small number of those citations are directed to subject matter that appears to be pertinent to the

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subject matter recited in the instant claims. It is unclear why the other applications and patents were cited because they do not appear to be "material to the patentability" of the claimed invention (37 CFR 1.56). For example, the claims of US application 09/661,444 are directed to a heat activatable adhesion, the claims of 09/867,557 are drawn to a thermosensitive recording medium, the claims of 09/897,924 are directed to a photoconductor, etc. US 6,492,079 B2 is directed to a photoconductor. The applications are listed in IDS101502 and IDS011603. MPEP 2004, particularly section (13), sets forth guidelines to aid applicants in their duty of disclosure. This section states: "It is desirable to avoid the submission of long lists of documents if it can be avoided. Eliminate clearly irrelevant and marginally pertinent cumulative information. If a long list is submitted, highlight those documents which have been specifically brought to applicant's attention and/or are known to be of most significance. See *Penn Yan Boats, Inc. v. Sea Lark Boats, Inc.*, 359 F. Supp. 948, 175 USPQ 260 (S.D. Fla. 1972), *aff'd*, 479 F.2d 1338, 178 USPQ 577 (5th Cir. 1973), *cert. denied*, 414 U.S. 874 (1974)." In order to clarify the "material" nature of these references to the patentability of the instant claims, applicants should specify why each of the above noted applications or patents was cited.

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3. The information disclosure statements ~~filed on~~<sup>34D  
5/16/04</sup> filed on Apr. 9, 2203, Jul. 18, 2003, Oct. 22, 2003, Nov. 24, 2003, Dec. 2, 2003, and Dec. 22, 2003, do not fully comply with the requirements of 37 CFR 1.98 because: they fail to comply with 37 CFR 1.98(a)(2)(iii), which requires legible copies of those portions of the copending U.S. applications which caused them to be listed.

Since the submission appears to be *bona fide*, applicants are given **ONE (1) MONTH** from the date of this notice to supply the above mentioned omissions or corrections in the information disclosure statement. The examiner notes that if applicants have a postcard receipt stating that the USPTO did receive copies of the documents, applicants should provide a copy of said receipt so that there is no ambiguity in the record that applicants did provide copies of the missing documents.

NO EXTENSION OF THIS TIME LIMIT MAY BE GRANTED UNDER EITHER 37 CFR 1.136(a) OR (b). Failure to timely comply with this notice will result in the above mentioned information disclosure statements being placed in the application file with the noncomplying information **not** being considered. See 37 CFR 1.97(i).

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4. The disclosure is objected to because of the following informalities:

The use of trademarks, e.g. Hansa yellow [sic: HANSA yellow] at page 33, line 22, has been noted in this application. The trademarks should be capitalized wherever they appear and be accompanied by the generic terminology. This example is not exhaustive. Applicants should review the entire specification for compliance.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

In claim 8, the recitation "polyester has a molecular weight distribution such that a peak . . ." lacks antecedent basis in the specification. See page 4, lines 13-15, of the specification, which discloses that the "soluble components of

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the binder resin [polyester] has a molecular weight distribution such that a peak is observed in the range of from 1,000 to 30,000" (emphasis added). The recitation in claim 8 includes insoluble components.

6. The examiner notes that the following terms recited in the instant claims are defined in the specification as:

The quantity "M," the quantity of an element on the surface of the toner particles, recited in instant claims 1 and 2, is defined as " $[(A \times W) / \{ (A1 \times W1) + (A2 \times W2) + \dots + (An \times Wn) \}]$ ," where A represents the amount of the element (atomic % determined using ESCA (XPS)) and W represents the atomic weight of the element; A1, A2, and An represent the amounts of elements detected when the surface portion is analyzed and W1, W2, and Wn represent the atomic weights thereof. Specification, pages 20-21.

The quantity "T," the quantity of the element in the toner composition, recited in instant claims 1 and 2, is defined as " $C \times f$ ," where C represents the "content" of the charge controlling agent in the toner and f represents the "content" of the specific element in the charge controlling agent. Specification, page 22, lines 22-25.



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The spherical degree recited in instant claim 1 is defined as " $C_s/C_p$ " where  $C_p$  represents the circumference of a projected image of a particle and  $C_s$  represents the circumference of a circle whose area is the same as that of the projected image of the particle. Specification, page 19, lines 6-12.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f), or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 5, 6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese patent 06-348055 (JP'055)

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combined with US 6,077,635 (Okado). See the Japanese Patent Office (JPO) machine-assisted translation of JP'055 for cites.

JP'055 discloses a toner comprising toner particles that comprise a binder resin, a colorant, and a salicylic acid metal compound as the charge control agent. The salicylic acid metal compound meets the charge control agent limitation recited in instant claim 6. The ratio of the amount (mass%) "A" of the charge control agent existing on the surface of the toner particles to the amount (mass %) "a" of the charge control agent used in the preparation of the toner is 13.2. The relative amount of the charge control agent present in the toner particles is 1.8 wt%, which is within the range of 0.01 to 2.0% wt recited in instant claim 5. The amount of 1.8 wt% is determined from the information disclosed in paragraphs 0062-0065 of the JPO translation. See the JPO translation, example 1, paragraphs 0062 to 0068. The toner particles are obtained by a suspension polymerization method, which meets the steps in the second method recited in instant claim 9. The toner particles have a weight-average particle size of 8.1  $\mu\text{m}$ . Translation, paragraph 0067.

JP'055 does not explicitly disclose that ratio the A/a is determined by the same method used to measure the ratio M/T recited in instant claim 1. See paragraph 6, supra. However,

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the numerical value 13.2 of the ratio A/a is within the numerical range of 10 to 1,000 recited in instant claim 1.

JP'055 discloses that the amount of charge control agent existing on the surface of the toner particles was determined by a XPS method, which is the same method used to determine the quantity M. Translation, paragraphs 0033 to 0036. From the disclosure in the JPO translation in paragraphs 0033 and 0034, the mass% of the charge control agent existing on the surface of the toner particles appears to be determined from the "mole" concentrations measured by XPS of the components on the surface of the toner particles and the molecular weight of the components. Said determination appears to be the same or similar to that used in determining the quantity M recited in instant claim 1. See paragraph 6, supra. Thus, it is reasonable to presume that the charge control agent in JP'055's toner particles is present in the ratio M/T recited in instant claim 1. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

JP'055 does not disclose that its toner particles have a sphericity of 0.96 to 0.99 as recited in instant claim 1.

Okado discloses a toner comprising toner particles having a circularity of from 0.920 to 0.995, containing particles with a circularity of less than 0.950 in an amount of from 2% by number

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to 40% by number, and having a weight-average particle size of from 2.0 to 9.0  $\mu\text{m}$ , preferably from 4.0 to 8.0  $\mu\text{m}$ , as measured by a COULTER counter, and a particular external additive.

Col. 6, lines 51-64. Okado exemplifies toners having a circularity of 0.983, which is within the range of 0.96 to 0.99 recited in instant claim 1. See Table 2 at col. 79, example 1. Okado's "circularity" has the same definition as the spherical degree recited in instant claim 1. Compare Okado, col. 8, lines 40-51, and paragraph 6, supra. The toner weight-average particle size of 8.1  $\mu\text{m}$  of the toner in JP'055's example 1 is within the teachings of Okado.

Okado discloses that if the circularity is less than 0.920, the external additive tends to localize on the toner particle surfaces, resulting in unstable image densities. If the circularity is more than 0.995, the external additive is held on the toner particle surfaces with difficulty, resulting in unstable charging which leads to fog formation. Col. 8, lines 52-58. Okado discloses that the toner particles can be obtained by a suspension polymerization method. Col. 10, lines 3-23. Okado's suspension polymerization method is the same as or similar to that disclosed by JP'055. Okado teaches that circularity distribution can be controlled by selecting the type and amount of dispersion stabilizer, agitation power, pH of

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the aqueous phase and polymerization temperature. Col. 10, lines 24-27.

Okado discloses that toners having Okado's preferred weight-average particle size provide high quality images. Col. 24, lines 33-38. Okado discloses that toners having a weight-average particle size of less than 2  $\mu\text{m}$  have poor transfer efficiency, resulting in the formation of large quantities of residual toner on the photoreceptor, which causes uneven images and melt-adhesion of the residual toner to the photoreceptor. Toners having a weight-average particle size greater than 9  $\mu\text{m}$  provide lower quality images, for example, images with black spots around line images, and tend to cause melt-adhesion of toner to various members. Col. 24, lines 42-50.

Okado discloses that his toner particles combined with his particular external additive can provide fog-free images with superior image-density stability and minute-image reproducibility, without causing deterioration of the toner "in its long term service." Col. 6, lines 11-14. The external additives include (A) inorganic powder having an average particle size of from 10  $\mu\text{m}$  to 400  $\mu\text{m}$  and a shape factor SF-1 of from 100 to 130, and (B) a non-spherical inorganic powder having a SF-1 of greater than 150. Col. 6, lines 57-64.

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It would have been obvious for a person having ordinary skill in the art to adjust, through routine experimentation, the parameters in the suspension polymerization method used to obtain the toner particles in JP'055's example 1 as taught by Okado, such that the resulting toner particles have a circularity that is within the range of 0.96 to 0.99 recited in instant claim 1, and to add Okado's particular external additive to said resultant toner particles, because that person would have had a reasonable expectation of successfully obtaining a toner having the benefits disclosed by Okado.

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'055 combined with Okado as applied to claim 1 above, further combined with US 6,080,519 (Ishiyama) and US 5,547,802 (Kawase). See the JPO translation of JP'055 for cites.

JP'055 combined with Okado renders obvious a toner as described in paragraph 9 above, which is incorporated herein by reference.

Neither reference discloses toner particles having a volume average particle size  $D_v$  and a ratio of  $D_v$  to  $D_n$ , the number average particle size, recited in instant claim 4.

Ishiyama teaches that when the volume average particle size

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of the toner is less than 2  $\mu\text{m}$ , the charge property of the toner is insufficient and lowers the developing property (i.e., developing quality). If the volume average particle size is greater than 9  $\mu\text{m}$ , the resolution of the image is degraded.

Col. 7, lines 22-27. The range of 2 to 9  $\mu\text{m}$  overlaps the range of 2 to 8  $\mu\text{m}$  recited in instant claim 4. Thus, the toner art recognizes the volume average particle size as result a result-effective variable, the variation of which is presumably within the skill of the person having ordinary skill in the art.

Kawase teaches that in order to obtain images with excellent dot reproduction and sharpness, "it is preferable that the volume mean diameter ( $D_v$ ) of the toner particles be in the range of 3 to 9  $\mu\text{m}$ , and that the ratio of the volume mean diameter ( $D_v$ ) to the number-average particle diameter ( $D_p$ ) . . . be in the range of 1.00 to 1.15." Col. 18, lines 49-54. The range of 1.00 to 1.15 meets the range of "not greater than 1.2" recited in instant claim 4. The range of 3 to 9  $\mu\text{m}$  overlaps the range of 2 to 8  $\mu\text{m}$  recited in instant claim 4.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Ishiyama and Kawase, to adjust, through routine experimentation, the particle size of the toner rendered obvious over the combined teachings

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of JP'055 and Okado, such that the resultant toner has a volume average particle size and a ratio  $D_v/D_p$  that are within the scope of instant claim 4, because that person would have had a reasonable expectation of successfully obtaining a toner that images with improved dot production and sharpness.

11. Claims 1, 2, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 2000-112180 (JP'180) combined with Okado. See the Japanese Patent Office machine-assisted translation of JP'180 for cites.

JP'180 discloses a toner composition comprising toner particles comprising a polyester binder resin, a colorant, and a charge controlling agent. The toner particles are obtained by a pulverization method. Translation, example 1, paragraphs 0034-0040. The proportion (wt%) "S1" of the atomic element associated with the charge control agent present on the surface of the toner particles is 5.0 times the proportion (wt%) "B1" of the atomic element associated with the charge control agent in the toner particles. Translation, example 1, paragraph 0039, line 4. The amount of S1 was determined using a XPS method in the same manner as the quantity M recited in the instant claims. The amount of B1 is determined in the same manner as T recited in the instant claims. Compare the JPO



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translation, paragraphs 0006 and 0009 to 0011, and paragraph 6, supra.

JP'180 does not exemplify a toner having a S1/B1 ratio of 10 to 1,000 as recited in instant claim 1. However, JP'180 teaches that the ratio S1/B1 should be greater than or equal to 4.0, preferably greater than or equal to 5.0 Paragraphs 0006 and 0013. According to JP'180, when the charge control agent is present in the ratio S1/B1 greater than or equal to 4.0, the toner has a high electrification charge and electrification rate, and provides images with good image quality (i.e., "no blur of the solid section is seen at all after a 6000-sheet copy"). Translation, paragraphs 0042, 0048, and 0053, and Table 6, example 1. When the ratio S1/B1 is less than 4.0, the amount of initial electrification is small, and toner provides images of poor image quality (i.e., "a blur in the solid image" is noticed after 6,000 copies). Translation, Table 6, comparative examples 1-3. Thus, the art recognizes the ratio S1/B1 as a result-effective variable, the variation of which is presumably within the skill of the person having ordinary skill in the art.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of JP'180, to adjust, through routine expectation, the amount of the charge control

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agent on the surface of the toner particles in JP'180's example 1, such that the resultant toner has a S1/B1 ratio that is within the ranges of 10 to 1000 or of 100 to 800 recited in instant claims 1 and 2, respectively, because that person would have had a reasonable expectation of successfully obtaining a toner that has a higher electrification charge and electrification rate, and provides images with good image quality.

JP'055 does not disclose that its toner particles have a spherical degree of 0.96 to 0.99 as recited in instant claim 1.

Okado discloses a toner comprising toner particles having a circularity of from 0.920 to 0.995, containing particles with a circularity of less than 0.950 in an amount of from 2% by number to 40% by number, and having a weight-average particle size of from 2.0 to 9.0  $\mu\text{m}$ , preferably from 4.0 to 8.0  $\mu\text{m}$ , and a particular external additive. The discussion of Okado in paragraph 9 is incorporated herein by reference. In addition, Okado discloses that toner particles obtained by a pulverization method can be further treated by a hot water bath method, by a hot-air method, or by a mechanical impact method to obtain the circularity disclosed by Okado. Col. 9, lines 3-10.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Okado, to

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spherically-treat the toner particles rendered obvious over the teachings of JP'180, such that the resultant toner particles have a circularity of 0.96 to 0.99 recited in instant claim 1; to adjust, through routine experimentation, following the teachings of Okado, the particle size of said resultant toner particles such that said resultant toner particles have a weight-average particle size of 8.0  $\mu\text{m}$ ; and to add Okado's particular external additive to said resultant toner particles, because that person would have had a reasonable expectation of successfully obtaining a toner having the benefits disclosed by Okado.

Instant claim 9 is written in product-by-process format. JP'180 does not disclose that its toner is made by any of the 7 processes recited in instant claim 9. However, as discussed above, the toner rendered obvious over the combined teachings of JP'180 and Okado meets the compositional limitations recited in instant claim 1. Accordingly, the toner rendered obvious over the combined teachings of JP'180 and Okado appears to be the same or substantially the same as the toner made by any of the 7 processes recited in instant claim 9. The burden is on applicants to prove otherwise. In re Marosi, 218 USPQ 289 (Fed. Cir. 1983); In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985); MPEP 2113.

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12. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'180 combined with Okado as applied to claim 1 above, further combined with Ishiyama and Kawase. See the JPO translation of JP'180 for cites.

JP'180 combined with Okado renders obvious a toner as described in paragraph 11 above, which is incorporated herein by reference.

Neither reference discloses toner particles having a volume average particle size  $D_v$  and a ratio of  $D_v$  to  $D_n$ , the number average particle size recited in instant claim 4.

Ishiyama teaches toners having a volume average particle size of 2 to 9  $\mu\text{m}$ . Kawase teaches toners having a volume mean diameter of 3 to 9  $\mu\text{m}$ , and the ratio  $D_v/D_p$  of 1.00 to 1.15. The discussions of Ishiyama and Kawase in paragraph 10 are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Ishiyama and Kawase, to adjust, through routine experimentation, the particle size of the toner rendered obvious over the combined teachings of JP'180 and Okado, such that the resultant toner has a volume average particle size and a ratio  $D_v/D_p$  that are within the scope of instant claim 4, because that person would have had a

reasonable expectation of successfully obtaining a toner that images with improved dot production and sharpness.

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'180 combined with Okado as applied to claim 1 above, further combined with US 2001/0010887 A1 (Sawano). See the JPO translation of JP'180 for cites.

JP'180 combined with Okado renders obvious a toner as described in paragraph 11 above, which is incorporated herein by reference.

JP'180 does not exemplify a toner comprising a charge controlling metal complex of salicylic acid as recited in instant claim 6. However, JP'180 does not limit the type of charge control agent used. JP'180 teaches that the charge control agent may be the "metal salt with chromium of a salicylic acid or an alkyl salicylic acid, zinc, aluminum, etc., a metal complex." Translation, paragraph 0019.

Sawano teaches charge controlling zirconium complexes of salicylic acid. See, for example, preparation example 1 in paragraphs 0029-0031. Sawano discloses that such zirconium complexes are colorless stable compounds. According to Sawano, the complexes have good dispersibility in a binder resin and are able to impart a "good tribocharge property to an

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electrophotographic toner." Paragraph 0007, lines 6-11. The complexes are not detrimental to the environment as the conventional chromium-containing charge-control compounds. Toners comprising said zirconium complexes as charge control agents are capable of "constantly presenting an image of high image quality." Paragraphs 0005-0006, and example 1 in paragraph 0042.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Sawano, to use Sawano's zirconium complex of salicylic acid as the charge control agent in the toner rendered obvious over the combined teachings of JP'180 and Okado, because that person would have had a reasonable expectation of successfully obtaining a toner that is not detrimental to the environment and is capable of "constantly presenting an image of high image quality."

14. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'180 combined with Okada as applied to claim 1 above, further combined with US 5,176,978 (Kumashiro). See the JPO translation of JP'180 for cites.

JP'180 combined with Okado renders obvious a toner as described in paragraph 11 above, which is incorporated herein by reference.

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None of the references discloses that the toner may comprise a wax dispersed in the toner binder resin having an average particle size of 0.2 to 2.0  $\mu\text{m}$ , as recited in instant claim 7. However, JP'180 teaches that a wax may be used in its toner. Translation, paragraph 0033, line 3.

Kumashiro teaches toners comprising a wax consisting of a low molecular weight polypropylene and a particular high density polyethylene, wherein the wax is dispersed in the toner binder resin to form domains having a size of 0.1 to 1.5  $\mu\text{m}$ . Col. 1, lines 47-54. Kumashiro exemplifies toners comprising wax domains having a size of 1.2  $\mu\text{m}$ . See Table 1, example 4. The domain size of 1.2  $\mu\text{m}$  and the upper domain size of 1.5  $\mu\text{m}$  in the range of 0.1 to 1.5  $\mu\text{m}$  are within the range of 0.2 to 2.0  $\mu\text{m}$  recited instant claim 7. Kumashiro discloses that the size of the wax domains in the toners can be controlled by the addition of water in the melt kneading of the toner materials. Col. 7, lines 5-8. Kumashiro discloses that toners comprising its particular wax domains provide toner images that are "free from the occurrence of the stains and blurs due to rubbing of the developed images." Col. 1, lines 42-46, and Table 2, example 4. According to Kumashiro, said toners also prevent high-temperature offset and have improved storage stability, and no toner aggregation or coagulation. See Table 4, example 4, and col. 11, lines 38-45.

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It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kumashiro, to use Kumashiro's wax as the wax in the toner-rendered obvious over the combined teachings of JP'180 and Okado, and to adjust the wax domain size, through routine experimentation as taught by Kumashiro, such that the resultant toner comprises wax domains having a size of 1.2  $\mu\text{m}$ , which is within the range of 0.2 to 2.0  $\mu\text{m}$  recited in instant claim 7. That person would have had a reasonable expectation of successfully obtaining a toner having improved storage stability and that provide images having the benefits disclosed by Kumashiro.

15. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'180 combined with Okada as applied to claim 1 above, further combined with US 5,902,709 (Nakayama). See the JPO translation of JP'180 for cites.

JP'180 combined with Okado renders obvious a toner as described in paragraph 11 above, which is incorporated herein by reference.

JP'180 does not exemplify a toner comprising a polyester binder resin as recited in instant claim 8. However, JP'180 does not limit the type of binder resin used. Translation, paragraph 0031.



Nakayama discloses a toner polyester binder resin having a molecular weight peak of 6,600 and comprising 2.6 wt% of a fraction having a molecular weight of  $1 \times 10^6$  or more. See Table 1 at col. 16, resin 1. The molecular weight peak of 6,600 is within the range of 1,000 to 30,000 recited in instant claim 8. The 2.6 wt% of the fraction having a molecular weight of  $1 \times 10^6$  or more meets the amount limitation of 1 to 10 wt% of a fraction having a molecular weight of not less than 30,000 recited in instant claim 8. Nakayama discloses that a toner comprising its polyester binder resin has low fixing properties and good anti-offset properties. Col. 1, lines 28-33 and Table 1, toner 1 at col. 17, and col. 19, lines 58-66. According to Nakayama, a toner with a low fixing temperature reduces the amount of energy used in making copies and can be used in high speed copiers. Col. 1, lines 18-32.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Nakayama, to use the polyester resin taught by Nakayama as the binder resin in the toner rendered obvious over the combined teachings of JP'180 and Okado, because that person would have had a reasonable expectation of successfully obtaining a toner having low fixing properties and good anti-offset properties, such that the toner

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reduces the amount of energy used in making copies and is capable of being used in high speed copiers.

16. Claims 1, 2, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'180 combined with US 6,326,115 B1 (Nakanishi). See the JPO translation of JP'180 for cites.

JP'180 renders obvious a toner as described in paragraph 11 above, which is incorporated herein by reference.

JP'180 does not disclose that its toner has a spherical degree as recited in instant claim 1. Nor does JP'180 exemplify a toner comprising a polyester binder resin as recited in instant claim 11. However, JP'180 does not limit the type of binder resin used. Translation, paragraph 0031.

Nakanishi discloses toners having a Wadell practical sphericity of 0.90 to 1.00, preferably 0.95 to 1.00, more preferably 0.98 to 1.00. The toners comprise a polyester resin comprising a urea bond. Col. 2, lines 42-46, and col. 3, lines 21-22. Nakanishi exemplifies toners comprising a polyester modified with a urea bond and having a sphericity of 0.96. See example I-3 at cols. 24 to 25. The sphericity of 0.96 is with the range of 0.96 to 0.99 recited in instant claim 1. The sphericity ranges of 0.95 to 1.00 and 0.98 to 1.00 overlap the range of 0.96 to 0.99 recited in instant claim 1.

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The Wadell practical sphericity has the same definition as the spherical degree recited in instant claim 1. Compare Nakanishi, col. 3, lines 14-20, and paragraph 6, supra. The polyester modified with a urea bond meets the binder resin compositional limitation recited in instant claims 10 and 11.

Nakanishi discloses that toner particles obtained by a pulverization method can be further treated by mechanically "globing" said particles using a hydridizer or a mechano-fusion apparatus. Col. 10, lines 51-55. According to Nakanishi, toners comprising its polyester modified with a urea bond and having said sphericity have excellent powder fluidity and superior developing ability and transferability. Col. 2, lines 61-62. The toners have excellent storage stability under heat and have superior low temperature fixing ability and hot offset resistance. Col. 2, lines 65-67.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Nakanishi, to use Nakanishi's polyester modified with a urea bond as the binder resin in the toner particles rendered obvious over the teachings of JP'180, and to spherically-treat the toner particles, such that the resultant toner particles have a Wadell sphericity that is within the range of 0.96 to 0.99 recited in the instant claims, because that person would have had a reasonable

expectation of successfully obtaining a toner having the benefits disclosed by Nakanishi.

Instant claim 9 is written in product-by-process format. JP'180 does not disclose that its toner is made by any of the 7 processes recited in instant claim 9. However, as discussed above, the toner rendered obvious over the combined teachings of JP'180 and Nakanishi meets the compositional limitations recited in instant claim 1. Accordingly, the toner rendered obvious over the combined teachings of JP'180 and Nakanishi appears to be the same or substantially the same as the toner made by any of the 7 processes recited in instant claim 9. The burden is on applicants to prove otherwise. Marosi, supra; Thorpe, supra; MPEP 2113.

17. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

18. Claims 1-3 and 9-11 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of copending Application No. 10/392,894 (Application'894) in view of Nakanishi.

This is a provisional obviousness-type double patenting rejection.

Reference claims 1 and 3 recite a toner composition comprising toner particles comprising a binder resin, a colorant, and a charge control agent particle, where the charge control agent particle is present in a ratio M/T of 20 to 500, where M and T are defined as recited in instant claim 1. See Application'894, paragraphs 0034 and 0036. The ratio M/T of 20 to 500 meets the ranges of 10 to 1,000 recited in instant claim 1. The upper limit of the ratio, "500," is within the range of 100 to 800 recited instant claim 2, and the ratio M/T of 20 to 500 overlaps the range of 100 to 800 recited in instant claim 2. Reference claim 3 further recites that the toner particles are made by a method that meets the steps of the fourth process recited in instant claim 9, which depends from instant claim 1. Reference claim 6, which depends from

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reference claims 1 and 3 requires that the binder resin be a modified polyester resin, which meets the binder resin limitation recited in instant claim 10.-

The reference claims do not recite that the toner compositions satisfy the charge quantity relationship recited in instant claim 3, which depends from instant claim 1. However, as discussed above, the toner compositions recited in reference claims 1 and 3 meet the compositional limitations recited in instant claim 1. Thus, it is reasonable to presume that the toner compositions recited in reference claims 1 and 3 satisfy the charge quantity recited in instant claim 3. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

The reference claims do not recite that the toner composition has a spherical degree as recited in the instant claims. Nor do the reference claims recite that the modified polyester resin is a polyester resin comprising a urea bond as recited in instant claim 11. However, reference claim 6, which depends from reference claim 3, requires that the binder resin be a modified polyester resin.

Nakanishi discloses toners having a Wadell practical sphericity of 0.90 to 1.00 and comprising a polyester resin comprising a urea bond as the binder resin. The discussion of

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Nakanishi in paragraph 16 is incorporated herein by reference. In addition, Nakanishi discloses that toner particles having said sphericity can be obtained by a dispersion granulation process, where the toner composition is dissolved and dispersed in a solvent which can solve a toner resin binder, and the resulting solution is then dispersed in an aqueous solution to form toner particles. Col. 10, line 61, to col. 11, line 6. The dispersion granulation process disclosed by Nakanishi appears to be the same or substantially the same as process to make toner particles recited in reference claim 3.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Nakanishi, to use Nakanishi's polyester modified with a urea bond as the binder resin in the toner particles recited in the reference claims of Application'894, and to adjust, through routine experimentation, the conditions in the dispersion granulation process used to obtain said toner particles recited in reference claim 3, such that the resulting toner particles have a Wadell sphericity that is within the range of 0.96 to 0.99 recited in instant claim 1, because that person would have had a reasonable expectation of successfully obtaining a toner having the benefits disclosed by Nakanishi.

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19. Claim 4 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of copending Application'894 in view of Nakanishi, further in view of Ishiyama and Kawase.

The subject matter recited in the reference claims of Application'894 in with view of Nakanishi renders obvious a toner as described in paragraph 18 above, which is incorporated herein by reference.

The reference claims do not recite that the toner has the volume average particle size  $D_v$  and the ratio of  $D_v$  to  $D_n$  recited in instant claim 4.

Ishiyama teaches toners having a volume average particle size of 2 to 9  $\mu\text{m}$ . Kawase teaches toners having a volume mean diameter of 3 to 9  $\mu\text{m}$ , and the ratio  $D_v$  to the number average particle size  $D_p$  of 1.00 to 1.15. The discussions of Ishiyama and Kawase in paragraph 10 are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Ishiyama and Kawase, to adjust, through routine experimentation, the particle size of the toner rendered obvious over subject matter recited in Application'894 combined with the teachings in Nakanishi, such that the resultant toner has a volume average particle size and a ratio  $D_v/D_p$  that are within the scope of instant claim 4,



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because that person would have had a reasonable expectation of successfully obtaining a toner that images with improved resolution and sharpness.

20. Claim 6 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of copending Application'894 in view of Nakanishi and Sawano.

The subject matter recited in the reference claims of Application'894 in with view of Nakanishi renders obvious a toner as described in paragraph 18 above, which is incorporated herein by reference.

The reference claims do not recite the use of the charge control agent recited in instant claim 6.

Sawano teaches charge controlling zirconium complexes of salicylic acid. The discussion of Sawano in paragraph 13 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Sawano, to use Sawano's zirconium complex of salicylic acid as the charge control agent in the toner rendered obvious over the subject matter recited in Application'894 combined with the teachings of Nakanishi, because that person would have had a reasonable

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expectation of successfully obtaining a toner that is not detrimental to the environment and is capable of "constantly presenting an image of high image quality."

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (703) 872-9306.

Any inquiry of papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLD

May 1, 2004

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